

Reissu of US Patent 6,539,778

Details of error and Support for broadening claim 6

Error of Claim 6 - claims less than Applicants had a right to claim.

Original claim:

6. A method for the hydrostatic testing of a pipeline before its ends are connected wherein both ends are on the seafloor comprising:

using a submersible vehicle (SV) to operate pumps on a fill and test package to raise the internal pressure of the pipeline sufficiently for hydrostatic testing.

This original claim 6 is in error due to the recitation of “**pumps**” in line 3. The error is that the claim is subject to an unintended meaning based on the following argument: that a single pump to raise the internal pressure of the pipeline sufficiently for hydrostatic testing would not infringe original claim 6 since “pumps” infer that more than one pump must be used to raise the internal pressure of the pipeline.

Applicants’ specification clearly illustrates the invention with a single pump (col.5, lines 22-30):

“Referring now to Fig. 8, ...in preparation for the hydrostatic testing of pipeline 16. ...

Referring now to Fig. 9, SV 18 uses robotic arm 19 to stab line 42 from the fill and test package 40, **specifically a high pressure pump**, into the hot stab 56 on the panel 24 and valves 57 and 60 are opened.” (emphasis added)

Additionally, the specification clearly reads (col. 7, lines 1-5) as follows:

“There may be three separate pumps on the fill and test package 40 or two pumps, the low volume high pressure pump being able to add water to the pipeline or as a dewatering pump to suck water from the pipeline 16, or just one pump.”

Claims for Reissue

6. A method for the hydrostatic testing of a pipeline before its ends are connected wherein both ends are on the seafloor comprising:

using a submersible vehicle (SV) to operate at least one pump[s] on a fill and test package to raise the internal pressure of the pipeline sufficiently for hydrostatic testing.

7. A method for the hydrostatic testing of a pipeline [before its ends are connected wherein both ends are] on the seafloor comprising:

using a submersible vehicle (SV) to operate one or more pumps on a fill and test package to raise the internal pressure of the pipeline sufficiently for hydrostatic testing.

8. A method for the hydrostatic testing of a water filled pipeline [before its ends are connected wherein both ends are] on the seafloor comprising:

using a submersible vehicle (SV) to operate at least one high pressure pump[s] on a fill and test package to pump water into said water filled pipeline to raise the internal pressure of the pipeline sufficiently for hydrostatic testing.

9. A method for the hydrostatic testing of a pipeline between two subsea manifolds [before its ends are connected wherein both ends are on the seafloor] comprising:

using a submersible vehicle (SV) to operate one or more pumps on a fill and test package to pump seawater from near the seafloor into and raise the internal pressure of the pipeline sufficiently for hydrostatic testing.

1. A method of cleaning and or hydrostatic testing a pipeline between two subsea manifolds, one of said manifolds having a subsea pig launcher/receiver with a pig and the other having a subsea pig receiver comprising:

using a submersible vehicle (SV) to operate one or more pumps on a fill and test package to force seawater behind said pig and move said pig from the pig launcher/receiver to the pig receiver; and
using said SV to pump more water into said pipeline to a test pressure and maintaining said pressure to assure that there are no leaks in said pipeline.

4. A method for cleaning and hydrostatic testing [commissioning] a subsea pipeline [while both ends are on the subsea floor] between two [subsea] manifolds, one of said manifolds having a subsea pig launcher/receiver with a pig and the other having a [subsea] pig receiver comprising:

using a SV, operating at least one pump [pumps] on a fill and test package to force seawater behind said pig and move the pig from the pig launcher/receiver to the pig receiver; and
using a SV, pumping more seawater into said pipeline to a test pressure and maintaining said pressure to assure that there are no leaks in said pipeline[;

using a SV, connecting a line from a compressed gas pack to said pig launcher/receiver for flow of compressed gas to force said pig to said pig launcher/receiver ; and
pumping using a dewatering pump to suck water from said pipeline and moving said pig to said pig launcher/receiver].

5. A method according to claim 4 wherein said SV has a robotic arm for connecting and disconnecting said pump[s] to said pipeline.

Clean Copy of Claims

1. A method of cleaning and or hydrostatic testing a pipeline between two subsea manifolds, one of said manifolds having a subsea pig launcher/receiver with a pig and the other having a subsea pig receiver comprising:
using a submersible vehicle (SV) to operate one or more pumps on a fill and test package to force seawater behind said pig and move said pig from the pig launcher/receiver to the pig receiver; and
using said SV to pump more water into said pipeline to a test pressure and maintaining said pressure to assure that there are no leaks in said pipeline.

4. A method for cleaning and hydrostatic testing a subsea pipeline between two manifolds, one of said manifolds having a subsea pig launcher/receiver with a pig and the other having a pig receiver comprising:
using a SV, operating at least one pump on a fill and test package to force seawater behind said pig and move the pig from the pig launcher/receiver to the pig receiver; and
using a SV, pumping more seawater into said pipeline to a test pressure and maintaining said pressure to assure that there are no leaks in said pipeline.

5. A method according to claim 4 wherein said SV has a robotic arm for connecting and disconnecting said pump to said pipeline.

6. A method for the hydrostatic testing of a pipeline before its ends are connected wherein both ends are on the seafloor comprising:

using a submersible vehicle (SV) to operate at least one pump on a fill and test package to raise the internal pressure of the pipeline sufficiently for hydrostatic testing.

7. A method for the hydrostatic testing of a pipeline on the seafloor comprising:

using a submersible vehicle (SV) to operate one or more pumps on a fill and test package to raise the internal pressure of the pipeline sufficiently for hydrostatic testing.

8, A method for the hydrostatic testing of a water filled pipeline on the seafloor comprising:

using a submersible vehicle (SV) to operate at least one high pressure pump on a fill and test package to pump water into said water filled pipeline to raise the internal pressure of the pipeline sufficiently for hydrostatic testing.

9. A method for the hydrostatic testing of a pipeline between two subsea manifolds comprising:

using a submersible vehicle (SV) to operate one or more pumps on a fill and test package to pump seawater from near the seafloor into and raise the internal pressure of the pipeline sufficiently for hydrostatic testing.